DOCUMENT RESUME

ED 155 698 CS 204 141

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TITLE The Word in Education.
PUB DATE 75
NOTE 11p.; Paper presented at the 1975 El Paso Conference on Bilingual Education ; Best copy available

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Concept Formation; *Ethnocentrism; Intelligence; *Intelligence Factors; Mental Development; *Test Bias; Thought Processes; *Vocabulary; Vocabulary Skills
IDENTIFIERS Peabody Picture Vocabulary Test; *USSR

ABSTRACT

The Soviet position on vocabulary and the relationships among intelligence, language, and culture holds that thoughts and words have different developmental roots and that there are more differences than likenesses between them. In this United States study, 105 students grouped by their having parents in three different employment categories were asked to respond to pictures in the Peabody Picture Vocabulary Test (PPVT). Results suggest that vocabulary and not concept acquisition is the key to receiving a high IQ score on the PPVT. Subjects whose parents held professional jobs were more apt to have in their memories the stimulus words in the PPVT. Analysis of concepts known (as opposed to vocabulary words known) by students taking the test indicates that differences between "advantaged" and "disadvantaged" students are not nearly as serious as IQ scores suggest. School vocabulary magnifies the problem. The study concludes that the use of prestige vocabulary in the PPVT to determine intellectual potential is fraught with bigotry and is used to deny children due process in American education. (DS)

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Paper Presented at the 1975 (Spring) El Paso Conference
on Bilingual Education
University of Texas at El Paso
El Paso, Texas

The Word in Education

The power of the word goes unquestioned in education. A paraphrase of the first verse in The Gospel According to St. John expresses best the position of the word in education. The verse:

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> In the beginning was the word, and the word was with God, and the word was God.

The paraphrase:

> In education is the word, and the word is education, and the word is intelligence.

The theory of linguistic relativity is the scholar's expression of the power of language. This theory has an interesting history. Miller (1968, p.14), traces its modern expression to Johann George Hamann. He, Miller, states:

> ...Hamann, as the result of a religious conversion in 1758, became convinced that language, far from being a mere tool or conscious product of reason, entered into the very structure of cognition, was a constitutive factor in its development.

Continuing his discussion on Hamann, Miller (1968, p.15) writes:

> Perhaps most of what Hamann has to say about the relationship of language to thought can be derived from his belief in the divine origin of language. Just as in the beginning when God called the world into being through the divine Logos, so man too, having been taught this miracle by God, recreates his own spiritual reality by means of human language:
>
> Every phenonemon of nature was a word,-the sign, symbol and pledge of a new, secret, inexpressible, but all the more intimate union, communication, and community of divine energy and ideas. Everything man heard in the beginning, saw with his eyes, contemplated, and touched with his eyes, contemplated, and touched with his hands, was a living word; for God was the word. With this word in his mouth and on his heart, the origin of language was a natural, as near, and as easy as child's play.

It appears that Franz Boas brought the theory of linguistic relativity from Europe to America. Edward Sapir, a student of Boas' in conferring with Benjamin Whorf helped Whorf state what is referred to as Whorf's principle of linguistic relativity. Carroll (1967, p.26) states; "The idea of linguistic relativity did not emerge in a full-fledged form until after Whorf had started studying with Spair." Carroll (1967, p.27) further states; "Whorf's principle of linguistic relativity, or, more strictly, the Sapir-Whorf hypothesis

(since Sapir most certainly shared in the development of the idea) has, it goes without saying, attracted a great deal of attention." Some spin offs from the Sapir-Whorfian hypothesis are: 1) Tucker's (1972, p.236) comment on the American "melting pot".

> ...it has become increasingly apparent that the notion of trying to create an American "melting pot" was neither feasible nor desirable, and that, in fact, by attempting to promote linguistic and cultural homogenelity we have neglected or rejected one of our most valuable natural resources.

is a mild expression of those who despair and evidently feel language is the breadth of thought and culture. 2) Fishman, et. al. (1966) have observed:

> ...the two processes---de-ethnization and Americanization, on the one hand, and Cultural-linguistic self maintenance, on the other---are equally ubiquitous throughout all of American history...however, as a nation we have paid infinitely more attention to the American-ization process than to the self-maintenance process.

John and Horner (1970, p.144) report that Professor S.R. Ulibarri, Chairman of the Department of Romance Languages, University of New Mexico, has said:

> The feelings of many Spanish-Americans are expressed in the statement that "language is people, they are one and the same, to know one is to know the other,to lose one is to lose the other, to destroy one is to destroy the other.

Ulibarri's contention suggests that language is to man what heredity is to insects. Language has "genocidal" potential for Ulibarri. However, Carroll (1967, p.27) states: "In truth, the validity of the linguistic relativity principle has thus far not been sufficiently demonstrated; neither has it been flatly refuted."

Kleinfeld's (1973) interesting and most provocative thesis that physical features of an environment cause the development of human perceptions which result in specific intellectual strengths de-emphasizes the role of language in intellectual development. Kleinfeld (1973, p.345-46) suggests:

> Since the penalty of navigational errors in the Arctic could easily be rapid death through freezing, natural selection may have resulted in a high level of figural skills in the Eskimo groups. Those hunters who possessed a high level of figural abilities may have been more likely to survive...Such natural selection processes may be of great importance in determining characteristics of a population such as the Eskimo, who have lived in the same environment for long periods of time, who have been sexually isolated for many generations...

Bogoras (1973, p.102-3) in studying the Chukchee people discovered that these people found it most difficult to adequately sort the Holingren yarns; yet, these reindeer-herding people could have more than two dozen names for the task of distinguishing the patterns of reindeer hides. Anglin (1973, p.391) reports that Biesheuinel saw the following relationships among environment, cognitive growth and biological heritage:

> ...Stome environments push cognitive growth better, earlier, and longer than others. What does not seem to happen is that different cultures produce completely divergent and unrelated modes of thought. The reason for this must be the constraints of our biological heritage.

Russian scholars according to Zaporozhets and Elkonin (1971, p.210) "...have demonstrated the lack of a basis in the biogenic conception of the development of a child's thinking." Zaporozhets and Elkonin (1971, p.207) say:

> In reality, numerous observations and experiments indicate that the child is born without any signs of intellect and that the first thinking processes become available to him only during the end of the first year, and a result of experimentation with his own activities and acquaintance with a series of phenomena in the surrounding environment.

One should not conclude that Russian scholars are associationists just because they see the child being born with a tabula rasa intellect. They view associationism as: "...an antigenetic conception that does not concern

itself with problems of internal motivation forces in the individual development, which does not recognize any qualitative changes in its cause, and for which the problems of training and development also do not exist (Zaparozhets, and Elkonin, 1971, p.194)."

The Soviet position on the relationship of speech to thought is best expressed by Vygotsky. Vygotsky (1962, p.44) "...'the greatest discovery of the child' becomes possible only when a certain relatively high level of thought and speech development has been reached. In other words, speech cannot be 'discovered' without thinking".

Vygotsky continues; "In brief, we must conclude that:

1. In their ontogentic development, thought and speech have different roots.

2. In the speech development of the child, we can with certainty establish a preintellectual stage, and in his thought development, a prelinguistic stage.

3. Up to a certain point in time, the two follow different lines, independently of each other.

4. At a certain point these lines meet, whereupon thought becomes verbal and speech rational.

Vygotsky (1962, p.126) says:

> Thought and word are not cut from one pattern. In a sense, there are more differences than likenesses between them. The structure of speech does not simply mirror the structure of thought; that is why words cannot be put on by thought like a ready-made garment. Thought undergoes many changes as it turns into speech.

The Study

These theories concerning the relationships among intelligence, language, and culture create a focus for the research reported in this paper. Again, we return to Soviet authorities for a succinct statement of the rationale behind the study. Zaporozhets and Elkonin (1971, p.130) state:

> In view of the pronounced influence of environmental conditions on the development of vocabulary, it is difficult to obtain mean quantitative indicators of the absolute composition of vocabulary as well as of its increase with age. Growth of vocabulary, as well as the mastery of grammatical structure, depends directly on the conditions of life and upbringing, and individual differences here are much greater than in some other psychological spheres of development.

This Soviet position on vocabulary caused these researchers to ask: Does the absence of specific vocabulary items in a student's speech repertory indicate that the student has not acquired the concept with which these words are associated? To answer this question, 105 subjects (35 children whose parents held professional jobs; 35 children whose parents held blue collar jobs; and 35 children whose parents were on welfare) were asked to respond to pictures in the Peabody Picture Vocabulary Test (PPVT). The first stimulus word for each of the 150 items in the PPVT was the word on form B of this test. Each subject was instructed not to point to a picture until he heard a word he knew. That is, if a subject did not know the stimulus word on form B of the PPVT, other words associated with the concept behind the stimulus word were given until the subject pointed to one of the four pictures for each item.

Words associated with (each concept represented by the 150 stimulus words were chosen on the basis of words that would belong to either of these three categories: learned, formal, informal. Learned words had Greek and Latin morphemes in them (inebriated, intoxocated, crapulent, bibulous). Formal words were native to English; that is, they had an Anglo-Saxon heritage (drunk, bemused, besotted). Informal words are those labeled either slang or colloquial (ginny, flushed, swacked, fried, pickled, tight).

Thus, for item number 51 on form B of the PPVT, the examiner first gave the stimulus word: locomotive. If the subject did not point at a picture, the examiner continued giving stimulus words until the subject pointed at a picture. The examiner gave all the learned stimulus words before giving any of the formal stimulus words. If it was necessary, all the formal words were given before informal words were given. Stimulus words for item 51 were:

Learned	Formal	Informal
locomotive	streamliner	cannon-ball express
	freighter	choo-choo
	train	choo-choo train

The Results

Six questions were asked to determine if the three groups' (1) subjects whose parents held professional jobs, (2) blue collar jobs or (3) were on welfare) performances were significantly different at the .01 or .05 level of statistical confidence for: (1) IQ based on PPVT norms, (2) raw score earned on PPVT according to PPVT criteria, (3) mean number of learned word subjects did not respond to after not choosing to respond to the PPVT stimulus words, (4) mean number of formal words after subjects did not respond to learned words (5) mean number of informal words after subjects did not respond to formal words, (6) mean number of concepts known when given the opportunity to respond to more than the PPVT stimulus words. Table 1 gives the means for each category of subjects, the F scores, and the results of the Duncans Multiple Range Test.

Table 1

Items	Means for subject groups 1	2	3	F Score	Duncan's Test
I.Q.	107.85	97.71	83.88	29.87**	3, 2, 1
Raw Score	76.57	68.31	66.54	7.47**	3, 2, 1***
Learned Words	4.74	3.51	4.37	3.43	2, 3, 1
Formal Words	52.34	55.25	57.34	2.12	1, 2, 3
Informal Words	2.85	3.94	3.77	3.82	1, 2, 3
Concepts Known	135.94	130.97	131.94	5.06*	2, 3, 1

** Significantly different at the .01 level.
* Significantly different at the .05 level.
***Those underlined indicate that they did not differ significantly from each other.

Discussion

The results suggest that vocabulary and not concept acquisition is the key to receiving a high IQ on PPVT. Subjects whose parents hold professional jobs are more apt to have in their auditory memory stimulus words in the PPVT. However, these subjects' dependence upon formal words did not differ significantly from that of subjects whose parents held blue collar jobs or were on welfare. Neither group of subjects differed significantly in response to learned words or informal words. Thus, we can conclude that the stimulus

words in the PPVT are tailored for children whose parents hold professional jobs.

Although the range in mean score for IQ was 23.87 and for raw scores 10.03, the range for concepts known was only 4.97. Subjects whose parents held professional jobs differed at the .05 level for concepts known from the other two groups of subjects. Of course, a focus on concepts known indicates that the differences between the "advantaged" and the "disadvantaged" student is not near as serious as IQ scores suggest. School vocabulary magnifies the problem. School vocabulary is too rigid to assess the degree of concept attainment for some students.

Since concepts are the mental divisions man makes among the concrete and abstract phenomena of his environment so he may generate, maneuver, and control their relationships in a manner to satisfy his physical, emotional, social and aesthetic needs, concepts acquired should be the vortex in education, not prestige words. Perhaps, educators are using language, especially vocabulary, as a rationale for denying equal educational opportunities to far more students than are or ever has been denied equal educational opportunities due to race and ethnicity factors. The use of prestige vocabulary to determine one's intellectual ability and/or potential is fraught with bigotry and is used to deny more children due process in American education than any one other single factor. Those interested in applied linguistics should contemplate the feasibility of forcing a legal decision which would have greater significance for education than did the 1954 desegregation decision. Those interested in applied linguistics have the information, or know how to obtain it, to make American education more realistic for all children. Let's do it!

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